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Explaining the Deteriorating Entry Earnings of Canada's Immigrant Cohorts: 1966-2000

by Abdurrahman Aydemir and Mikal Skuterud

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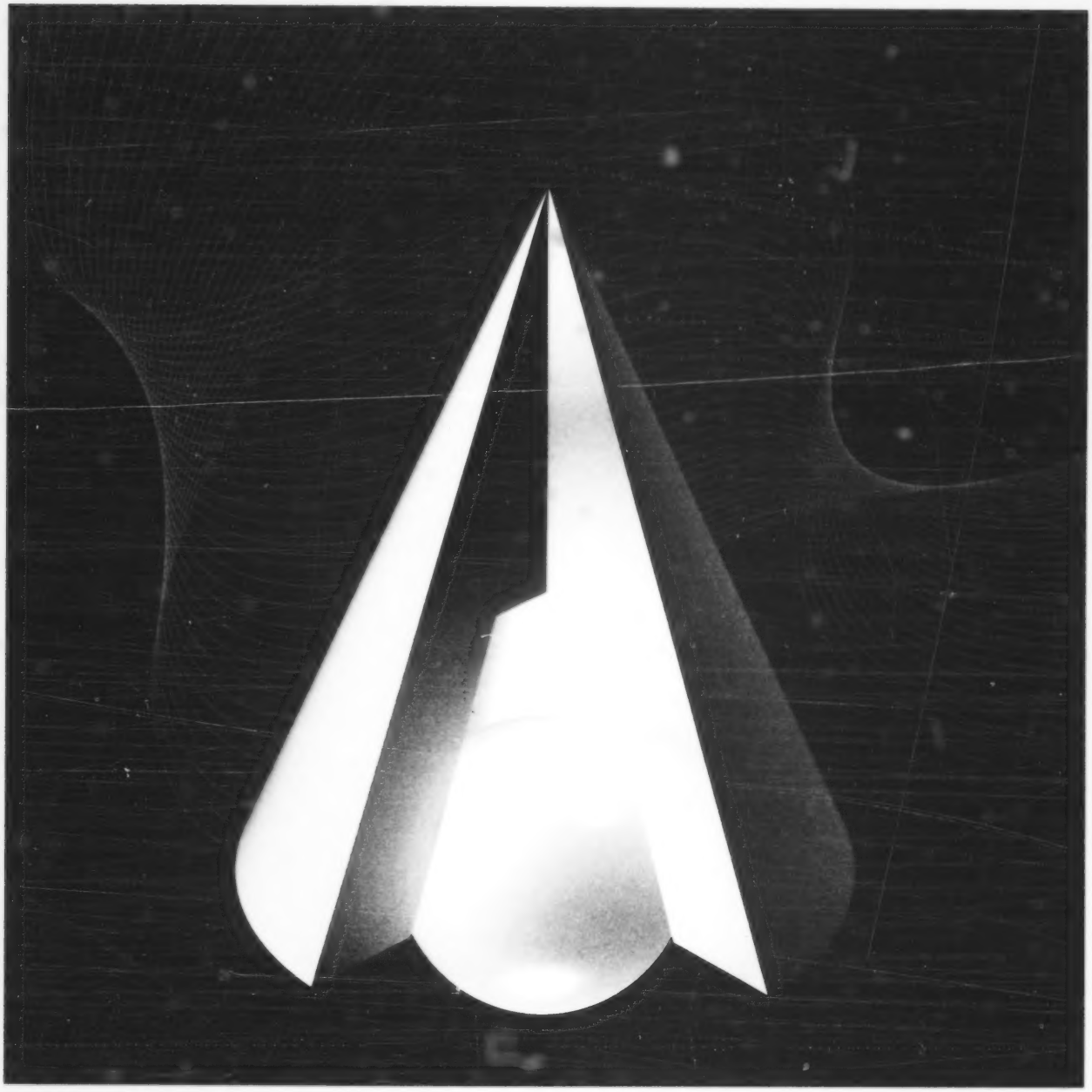

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Abstract

The study explores causes of the deterioration in entry earnings of Canadian immigrant cohorts by estimating an empirical specification that nests a number of competing explanations found in the Canadian literature. To do this, we use the pooled sample of Canadian-born and immigrant men employed full-year, full-time from the complete 20 percent samples of the 1981, 1986, 1991, 1996 and 2001 Canadian Censuses. Our results indicate that no more than one-third of the deterioration can be explained by compositional shifts in the knowledge of an official language, mother tongue and region of origin of recent immigrant cohorts. We also find little or no evidence that declining returns to foreign education are responsible. Roughly one-third of the deterioration appears to be due to a persistent decline in the returns to foreign labour market experience which has occurred almost exclusively among immigrants originating from non-traditional source countries. We are able to explain two-thirds of the overall decline in the entry earnings of Canada's most recent immigrants without any reference to entry labour market conditions. When we also account for entry conditions, our results suggest that Canada's immigrants who arrived in the 1995-1999 period would otherwise be enjoying entry earnings that were significantly higher than the entry earnings of the 1965-1969 cohort.

Key Words: immigration, entry earnings, cohort effects, earnings assimilation, credentials

JEL Classification: J61, J21

1. Introduction

Following the work of Chiswick (1978) and Borjas (1985) on the economic assimilation of immigrants in the U.S., there now exist a number of Canadian studies documenting changes in the earnings profiles of different cohorts of Canadian immigrants (Baker and Benjamin, 1994; Bloom, Grenier, and Gunderson, 1995; Grant, 1999; and Frenette and Morrisette, 2003). A common finding in all this research is a substantial deterioration in the entry earnings of more recent immigrant cohorts through the 1970s, 1980s and first half of the 1990s. In addition to lower earnings, this deterioration has been observed in relatively low employment and labour force participation rates of more recent arrivals (Aydemir, 2003). These findings are of concern to Canadian policy makers because they imply that, despite an upward trend in the educational attainment of Canada's new immigrants over this period, more recent arrivals are, if anything, facing greater challenges competing in Canada's labour markets. This raises questions about the role of immigration in providing Canada with a source of highly skilled individuals to boost economic growth. It also has important implications for the use of government transfer programs, such as social assistance and child tax benefits, as well as for income tax revenues.

In an effort to explain this deterioration in the economic outcomes of Canadian immigrants, a follow-up literature is now building that is focused on possible causes. Green and Worswick (2003) compare the experiences of more recent immigrant cohorts to Canadian-born workers who entered the Canadian labour market at the same time. Their findings suggest that an important part of the decline in the entry earnings of immigrants is a result of a more general economic trend that served to similarly reduce the earnings of Canadian-born labour market entrants. Further, their results suggest that the immigrant cohorts of the 1990s received a lower return to their foreign experience than did otherwise similar immigrants of the 1980s. Aydemir (2003) investigates the role of the business cycle on immigrant labour force participation and employment rates. His findings point to the more severe labour market conditions faced by immigrants of the early 1980s and early 1990s, which appear to have had a permanent scarring effect on the future assimilation prospects of these cohorts. Finally, Ferrer and Riddell (2003) directly address the popular perception that the educational credentials of more recent immigrants are not recognized by Canadian employers, given the change in the country of origin composition of recent immigrant cohorts. Their findings suggest that foreign credentials continue to receive large and significant returns implying that credentials are not responsible for the deteriorating entry earnings of more recent cohorts.

These studies use a variety of different data sources, definitions of earnings and empirical specifications to explore a variety of alternative explanations. As a result, it is difficult to assess how much of the overall deterioration in immigrant entry earnings can be attributed to each explanation. This paper contributes to the literature by estimating a more flexible empirical specification which nests all of the existing explanations, including changes in the country of origin composition of more recent cohorts, changes in the returns to foreign credentials and foreign experience, the scarring effects of entering Canada at different points in the economic cycle, and the effect of more general labour market trends that have similarly affected immigrants and recent Canadian-born labour market entrants. Furthermore, we update the existing literature by using the most recent Canadian Census data.[1] The 2001 Census data not only allows us to identify whether the previously observed decline in the entry earnings continued for the most recent immigrant cohort, but when combined with the 1981, 1986, 1991 and 1996 Censuses, it gives us

[1] Frenette and Morrisette (2003) also use the complete 20 percent 2001 Census data, but their analysis is focused on documenting changes in assimilation profiles between immigrant cohorts and not on explaining deteriorating entry earnings across these cohorts.

two complete decades of repeated cross-sections to document and explain long-term changes in immigrant cohort entry earnings and assimilation profiles.
Our baseline estimates, which control for the current unemployment rate, indicate that the 1995-1999 immigrant cohort had full-year, full-time entry earnings that were 24 percent lower than immigrants who arrived between 1965 and 1969 with similar amounts of foreign and Canadian, labour market experience and years of schooling. Perhaps surprisingly, given the awareness of and efforts to address the economic challenges facing Canada's new arrivals in the latter half of the 1990s, this represents only a modest improvement from the 1990-1994 cohort, whose entry earnings were 31 percent lower than the 1965-1969 cohort. When compared to the 1980-1984 and 1985-1989 cohorts, who had entry earnings that were 9 percent and 15 percent lower than the 1965-1969 cohort respectively, there is clearly still cause for concern.

What explains the continued deterioration of immigrant entry earnings into the 1990s? Our results indicate that no more than one-third of the deterioration can be explained by compositional shifts in the language abilities and country of origin of recent immigrant cohorts. Further, little or none of the deterioration can be explained by declining returns to education obtained abroad. The striking result from our analysis is that slightly more than one-third of the deterioration appears due to a persistent decline in the return to foreign labour market experience. Moreover, we find this decline in the return to foreign experience to have occurred almost exclusively among immigrants originating from non-traditional source countries, whose share has been steadily increasing since the mid 1960s. We are able to explain two-thirds of the decline in the entry earnings of Canada's most recent immigrants without any reference to entry labour market conditions. When we also control for the entry unemployment rate and the fact that Canadian-born labour markets entrants experienced a similar deterioration in their entry earnings through the 1980s and 1990s, our results suggest that Canada's immigrants who arrived in the 1995-1999 period would otherwise be receiving entry earnings that were significantly higher than the entry earnings of the 1965-1969 cohort.

The remainder of the paper is organized as follows. Section 2 describes the data and sets out the empirical specification used in the analysis. Section 3 then discusses our results, which are then used in Section 4 to predict earnings profiles for each of our immigrant cohorts. In Section 5 we conclude with a summary of our main findings.

2. Empirical Identification

2.1. Data

The analysis that follows uses the complete 20 percent microdata files of the 1981, 1986, 1991, 1996 and 2001 Canadian Censuses. In order to abstract from labour supply considerations as much as possible, the sample is restricted to males who worked full-year, full-time in the income reference year (i.e., the year preceding the Census year).[2] In this respect the Census is a preferred data source to the IMDB-tax data used by De Silva (1997) and Green and Worswick (2003), since estimated earnings assimilation are likely to reflect wage gains rather than increases in either the intensive or extensive margins of labour supply. In addition, the cohort analysis requires that the immigrant sample be restricted to those who arrived in Canada between 1965 and 1999 and the native sample to those who entered the labour market in the period between 1965 and 1999. We use potential experience (age minus total years of schooling minus 6) as our measure of experience throughout and assume that the Canadian-born entered the labour market in

[2] Full-year is defined as working 52 weeks in the income reference year. Full-time is defined as usually working more than 30 hours per week.

the year in which experience is 1. Finally, we only include immigrants and natives who were between the ages of 18 and 54 in the Census year. We also take a 20 percent random sample of natives, which leaves us with 404,033 Canadian-born and 413,901 immigrants.

An additional advantage of the Census data over the alternative IMDB-tax data is the latter include only immigrants so that the comparison earnings data on Canadian-born must be obtained from another source. Since this source is typically survey data, there are reasons to suspect the comparability of the immigrant and native earnings.[3] An advantage of the 20 percent Census files over the 3 percent public-use files is that year of immigration is coded in single years as opposed to multi-year periods. This detail allows us to split labour market experience, years of schooling and educational credentials uniquely into their Canadian and foreign components.[4] In addition, the complete 20 percent samples allow us to simultaneously estimate the effects of a group of detailed geography, language and region of birth variables, as well as experience and education effects interacted with six cohort dummies while maintaining considerable precision in identification.

2.2. Analysis

The standard approach to identifying immigrant entry earnings and assimilation effects in the literature is based on the work of Chiswick (1978) and Borjas (1985) and involves the estimation of the reduced form (or some variant of):

$$\log W = \beta_0 + \beta_1 EXP + \beta_2 EXP^2 + \beta_3 S + I \cdot \left(\delta_1 + \sum_{j=2}^{k} \delta_j C_j + \alpha_{11} YSM + \sum_{j=2}^{k} \alpha_{1j} (C_j \cdot YSM) + \alpha_2 YSM^2 \right) + u \quad (1)$$

where W is the weekly wage; EXP is years of labour market experience; S is years of schooling; I is an immigrant dummy variable; C_j are $k - 1$ cohort dummies identifying the period of arrival[5]; YSM is years since migration; and u is an iid error term. The cohort dummies and YSM variables are always equal to 0 for the Canadian-born. Estimating equation (1) on a pooled sample of immigrants and natives, we can interpret the estimates of δ_j as the entry earnings of cohort j relative to the excluded cohort (usually the earliest), after controlling for years of experience and schooling. In order to properly interpret these effects as quality differences between immigrant cohorts, more than a single cross-section of data is needed. In addition to identifying entry earnings effects, the quadratic YSM term in (1) provides evidence of the extent to which immigrants are able to assimilate into host country labour markets. By interacting the full set of cohort dummies and YSM, information on which cohorts are assimilating more or less quickly is obtained.

A weakness of specification (1) is that the estimated YSM profiles are difficult to interpret. To the extent that the sample contains school-aged immigrants or immigrants return to school upon arrival in the host

[3] In particular, unlike survey data, the IMDB data is sensitive to tax filing incentives. This has, for example, led to sample selection issues as filing rates increased among low income individuals with the introduction of the Canada Child Tax Benefit (CCTB) in early 1990s. On the other hand, the IMDB data provides important program information such as admission class of immigrants as well as detailed demographic characteristics as of the time of landing. The IMDB also provides longitudinal earnings information on individuals compared to Census data which is subject to the caveats mentioned above.

[4] Schaafsma and Sweetman (2001) and Ferrer and Riddell (2003) similarly distinguish Canadian and foreign experience and years of schooling, but due the public-use Census file limitations they are left with a residual "unknown" category.

[5] Our earliest immigrant arrival cohort is defined as the 1965-69 arrival cohort. C_2 is then equal to one for immigrants arriving in the next cohort between 1970-74: zero otherwise. Other cohort dummies are defined similarly.

country, the profiles will reflect not only the relative return to Canadian labour market experience for immigrants, but also human capital investments. Which of these two possibilities are driving the estimated assimilation patterns will, however, have very different policy implications. In addition, equation (1) assumes that Canadian-born and immigrant workers obtain the same returns to experience and schooling. Since, on average, the experience and schooling of immigrants will contain foreign elements which may not be directly transferable in the host country, we should expect immigrants to experience smaller returns to their experience and schooling. Indeed, there is strong evidence of such a differential in the U.S. (Kossoudji, 1989, Schoeni, 1998, Kee, 1995 and Chiswick and Miller, 1985, Friedberg, 2000) and Canadian (Schaafsma and Sweetman, 2001) literature. To allow for the possibility of different returns, equation (1) can be extended as follows:

$$\log W = \beta_0 + \beta_1 EXP + \beta_2 EXP^2 + \beta_3 S + I \cdot \left(\begin{array}{l} \delta_1 + \sum_{j=2}^{k} \delta_j C_j + \gamma_1 EXP + \gamma_2 EXP^2 + \gamma_3 S + \alpha_{11} YSM + \\ \sum_{j=2}^{k} \alpha_{1j} (C_j \cdot YSM) + \alpha_2 YSM^2 \end{array} \right) + u. \quad (2)$$

If the returns to experience and schooling also vary between immigrant cohorts, the estimated cohort effects from (2) will differ from those in (1). Since we are ultimately interested in explaining these cohort effects, it is important to first decide on a "baseline" specification that identifies the cohort effects that are to be explained.

Even in equation (2), it is unclear how the estimated returns to *YSM* should be interpreted. Allowing for immigrant-specific total experience profiles, does the *YSM* profile identify returns to Canadian experience or Canadian schooling? Our preferred specification which we use to identify the magnitude of the entry earnings deterioration across immigrant cohorts allows for these differentials. If we define $EXP = EXP_c + EXP_f$ and $S = S_c + S_f$, where the subscripts denote Canadian and foreign sources, and relax all between-term restrictions, we obtain a fully flexible version of (2) given by:

$$\log W = \beta_0 + \beta_1 EXP + \beta_2 EXP^2 + \beta_3 S + I \cdot \left(\begin{array}{l} \delta_1 + \sum_{j=2}^{k} \delta_j C_j + \gamma_{1c} EXP_c + \sum_{j=2}^{k} \gamma_{1jc} (C_j \cdot EXP_c) + \gamma_{1f} EXP_f + \\ \gamma_{2c} EXP_c^2 + \gamma_{2f} EXP_f^2 + \gamma_{cf} (EXP_c \cdot EXP_f) + \gamma_{3c} S_c + \gamma_{3f} S_f \end{array} \right) + u. \quad (3)$$

where the $(EXP_c \cdot EXP_f)$ term is a consequence of the EXP^2 term in (2). As usual, our estimates of $\delta_j, j = 2,...,k$ provide evidence on the relative entry earnings of different cohorts. However, in (3) we allow assimilation profiles to differ depending on whether the years since migration were spent obtaining Canadian labour market experience or Canadian schooling. By interacting the returns to Canadian experience with the full set of cohort dummies we obtain information on whether immigrants who enter the Canadian labour market on arrival experience assimilation relative to similar Canadian-born workers.

We begin the following section by estimating specifications (1) and (2). In these regressions, and in all subsequent specifications, we also control for current macro conditions using the provincial unemployment rate of men aged 25 to 54. We then move on to our preferred specification which distinguishes Canadian from foreign experience and schooling. Initially, we estimate (3) for different age

at arrival groups and without any cohort effects in order to draw parallels with the earlier literature and illustrate the advantages of allowing different returns to foreign experience and education. We then estimate (3) for all age groups and add cohort dummies, which results in cohort effects that are substantially smaller in magnitude than those estimated using (1) and (2). The remainder of the paper is concerned with explaining these cohort effects. We do this by first introducing controls for marital status, province and city of residence, language ability and region of birth. We then extend (3) by adding information on Canadian and foreign educational credentials and by allowing the returns to foreign education and experience to vary between cohorts. Finally, we examine the role of entry labour market conditions. This is done by adding the unemployment rate at labour market entry and introducing native entry cohort effects similar to the approach of Green and Worswick (2003).

3. Empirical Results

3.1. Results from the standard specification

The results from estimating specification (1) are presented in column 1 of Table 1. The cohort effect estimates indicate that the entry earnings of Canadian immigrants declined with each successive cohort throughout the period from the late 1960s to the early 1990s. By the early 1990s, new immigrants to Canada had earnings that were 56 percent lower than the entry earnings of immigrants arriving in the late 1960s. This trend is now well documented in the Canadian literature. The most recent Census data suggests that there was a modest reversal of this trend in the latter half of the 1990s as the differential declined to 47 percent. Given the improved labour market conditions of the 1990s and the efforts of policy makers to improve the selection process during the decade, it is perhaps surprising that the reversal has not been larger. When compared to the 1980s cohorts, who had entry earnings that were between 24 and 36 percent lower than the 1965-1969 cohort, Canada's most recent immigrants appear to be facing the similar challenges to those faced by the arrivals of the early 1990s.

The results, however, also suggest that the 1990s cohorts experienced considerably higher earnings growth than did previous cohorts. Duleep and Regets (1997) identify a similar negative correlation between entry earnings effects and assimilation rates using U.S. data and argue that this pattern reflects greater human capital investments upon arrival. Following up on this idea, Green and Worswick (2003) focus instead on the present value of future earnings to identify differences in immigrant quality between cohorts. The difficulty with this approach is it requires predicting out-of-sample earnings. For more recent cohorts like the 1995-1999 cohort, who in our data have, on average, been in Canada only 2.5 years, this estimation involves a substantial amount of imprecision. Even with our sample of over 17,000 observations in this cohort, we are unable to reject the null that the 1965-1969 and 1995-1999 cohorts have equal assimilation rates, despite a point estimate that suggests the most recent cohort experienced an additional 0.8 log points in earnings for every additional year in Canada. Furthermore, it is unclear how much of the increase in the assimilation rates of more recent cohorts is an artifact of the correlation in the data between years since migration and cohort. As long as there is some concavity in the true underlying assimilation profiles, we should expect to estimate a higher slope when we only have observations close to zero, compared to when the data are concentrated where the profile is more flatter. Finally, the possibility of capturing human capital investments made in the host country is less likely when the sample is restricted to full-year full-time employed men, than in the sample of all earners used by Green and Worswick (2003). Based on these considerations, we focus on cohort effects and leave the issue of changing assimilation rates between immigrant cohorts to the final section of the paper.

In the second column of Table 1, we relax the restriction of equal native and immigrant returns to experience and schooling. As expected, the results imply substantially lower returns for immigrants. For example, the rate of return to an additional year of schooling for an immigrant is roughly 6 percent, compared to 8 percent for a Canadian-born. This extension has the effect of causing all the negative cohort effects to decline in absolute value. The declines are however successively larger for more recent cohorts. So the difference between the entry earnings of the 1965-1969 and 1995-1999 cohorts is now 39 instead of 47 percent. This suggests that specification (1) overvalued the experience and schooling of the later cohorts relatively more. This would arise, for example, if foreign experience and schooling are valued less than Canadian experience and schooling, which we expect to be true, and if more recent cohorts have proportionally more of their total experience and schooling obtained abroad, which we know to be true.

3.2. Effect of distinguishing Canadian and foreign experience and schooling

Both specifications in Table 1 restrict the returns to the Canadian and foreign experience and schooling to be equal and identify assimilation using a years since migration (*YSM*) variable. By construction *YSM* is negatively correlated with age at migration which implies that it not only reflects the host country labour market experience, but also the host country schooling. In specification (3) we drop the quadratic *YSM* term and allow different returns to host country experience, schooling and credentials than that obtained abroad. In Table 2 we also drop the cohort effects and consider instead how the estimates vary between different age at migration groups. In all specifications we restrict the current age range of the native sample to 18 or the lower bound of the age at migration variable, whichever is higher, to be sure that immigrants are compared to natives at similar stages of their working lives.

The results in Table 2 provide strong evidence of the fact that skills obtained abroad are valued less by Canadian employers than skills obtained through Canadian work experience.[6] In the full sample, the linear return to foreign experience is only 1.4 percent compared to a return of 5.7 percent on Canadian experience. This result appears strongly among all age at migration groups, with the exception of immigrants who arrived before the age of 18. For this group, the return to foreign experience is, if anything, greater than the return to Canadian experience. This probably reflects the fact that average foreign experience among this group is very low, so that the returns are identified at a very steep portion of their foreign experience profiles. Since more recent immigrant cohorts have proportionally more of their total experience obtained abroad, restricting the returns to Canadian and foreign experience to be the same will serve to overstate the earnings deterioration across cohorts. This will be case even if the returns to Canadian and foreign experience have been constant over time.

The differential in the returns to Canadian and foreign years of schooling attained by immigrants is however not nearly as strong. The return to foreign school years is 6.1 percent, only slightly less than the return to Canadian years of 6.4 percent. Only slightly higher returns to Canadian schooling are also found in the 0-17 and 18-24 age at migration samples. This suggests that there is little consequence of failing to allow for separate Canadian and foreign schooling effects for immigrants as is common in the literature (this implication no longer holds when we introduce credentials in Section 3.4 though). The exception to the differential is the 25-34 age group who appear to obtain a substantially greater return to foreign schooling.[7] Finally, it is worth noting that the returns to foreign experience and schooling are declining strongly with age at migration. This is particularly interesting given the fact that the current age at arrival selection criterion makes no distinction between 21 and 49 year olds.

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[6] As mentioned in the data section, we distinguish foreign from Canadian education using information on age at migration.

[7] This reflects the fact that Canadian schooling among this group tend to be at higher levels (e.g., Master's, Ph.D.) where we know the returns are substantially lower.

The results in Table 2 emphasize how sensitive estimated experience and schooling returns are to age at migration sample restrictions. It is this sensitivity that leads Antecol, Kuhn and Trejo (2003) to exclude child immigrants from their samples. Indeed, if these immigrants obtained most of their schooling and experience in Canada then why should their earnings be any different than Canadian-born? This of course overlooks the possibility of unobserved heterogeneity in earnings potential between immigrants and the Canadian-born that exist whether the immigrant arrived at the age of 10 or 30. Moreover, simple sample attrition due to current age restrictions (in our case 18 to 54) means that the earlier cohorts contain disproportionately more immigrants arriving at early ages, since immigrants arriving at older ages will age and leave the sample. In the standard specification that ignores the Canadian and foreign components of experience and schooling, the resulting correlation between cohort and age at arrival will contaminate the estimated cohort effects. Based on these considerations our preference is to maintain the full sample of immigrants, but distinguish immigrants arriving as children and adults by always distinguishing Canadian from foreign experience, years of schooling and educational credentials.

Finally, our estimates of the effect of current macro conditions by age at migration are noteworthy. In the full sample of natives, a 1 percentage point increase in the current provincial unemployment rate implies a decline of about 1.8 percent in full-year, full-time earnings.[8] Looking across the columns of Table 2, older Canadian-born men appear substantially less sensitive to current macro conditions than do younger men. What is striking is that when we distinguish immigrant age at arrival groups this pattern does not emerge—men arriving at the youngest ages appear equally sensitive to macro conditions as men arriving at the oldest ages. This means that whereas immigrant men arriving before the age of 18 look no different than Canadian-born men, the earnings of immigrants arriving later in life are significantly more influenced by current labour market conditions than Canadian-born men of a comparable age. To the extent that real wages only decline between jobs and never within jobs, these results are consistent with declining hazard rates in the distribution of job durations, which can be explained by implicit or explicit seniority clauses in employment contracts or by job matching theory.

In Table 3, we add cohort effects to the final column of Table 2. When we restrict the experience profiles to be the same between cohorts, the estimated cohort effects are very similar to those obtained from specification (2). However, when we also interact the linear Canadian experience term with cohort, we obtain cohort effect estimates that are considerably smaller. The reason appears to be that all cohorts, particularly those from the 1980s, have obtained lower returns to their Canadian experience than did immigrants arriving in the 1965-1969 period. Accounting for this decline in earnings growth of immigrants implies less of a deterioration in entry earnings. Specifically, in our complete model that fully distinguishes Canadian from foreign experience and schooling, we find entry earnings of the 1995-1999 cohort to be 24 percent lower than the entry earnings of the 1965-1969 cohort. This continues to represent a modest improvement from the 1990-1994 cohort whose entry earnings were 31 percent lower than the earliest cohort. The remainder of the paper is concerned with explaining these earnings differentials.[9]

3.3. Role of geography, language, and region of origin

Table 4 explores the role of various demographic characteristics in explaining the deterioration in entry earnings. In the first column, we add controls for marital status and region of residence, including ten province dummies, dummies for Montreal, Toronto, and Vancouver and a separate dummy indicating residence in a rural area. Rather than reduce the magnitude of the estimated cohort effects, the results imply that the geographic settlement choices of more recent immigrant cohorts should, if anything, have

[8] We use the provincial unemployment rate of men aged 25 to 54.

[9] We leave the issue of earnings growth upon arrival to the final section of the paper.

served to boost their entry earnings relative to earlier cohorts. In the first 13 rows of Table 5, we report the estimates of the province and city effects, in addition to their means for the immigrant sample. The estimates reveal a large wage premium to living in Toronto and Vancouver relative to elsewhere in the country. These premiums presumably reflect industrial compositions as well as cost of living adjustments. Interestingly, Toronto and Vancouver are the only regions that have an increasing share of immigrants across the seven immigrant cohorts. Specifically, 62 percent of our 1995-1999 immigrant cohort are observed living in Toronto or Vancouver, compared to only 46 percent of the 1965-1969 cohort. Although this suggests that more recent arrivals were more likely to initially settle in these two cities, we must be careful in interpreting these results since the data are also consistent with no change in initial location choices and all cohorts tending to leave these cities as years since migration increases.

In the second column of Table 4, we add controls for language ability. Although the Census data contain neither tests of, or subjective questions on language ability, we are able to distinguish immigrants who report a knowledge of either English or French by interacting information on mother tongue and knowledge of official languages. Arguably, an immigrant with knowledge of either English or French will tend to have higher abilities in that language if it is also his mother tongue. The resulting cohort estimates indicate a small role for changing language abilities in explaining deteriorating entry earnings. The 1995-1999 cohort estimate declines from 27 to 23 percent, while the 1990-1994 cohort declines from 34 percent to 30 percent. Again, the estimated effects and the means of the variables are presented in Table 5. They indicate an important shift from unilingual English speakers with an English mother tongue to unilingual English speakers with a foreign mother tongue.[10] Not surprisingly, the earnings of the latter are significantly lower in the order of 9 percent.

The estimated cohort effects fall further in the third column of Table 4, where we add a set of 13 dummies for region of birth. In fact, compositional shifts in the region of origin across immigrant cohorts appear to have played a considerably larger role in reducing entry earnings than have weakening language abilities. The 1995-1999 cohort effect declines from 23 to 15 percent and the 1990-1994 cohort estimate from 30 to 23 percent. The means of the region of birth variables across cohorts, presented in Table 5, reveal a remarkable decline in immigration from Canada's "traditional" source countries since the mid-1960s. In our sample, 65 percent of the 1965-1969 cohort were born in Northern, Western or Southern Europe and 13 percent in Asia. In sharp contrast, 54 percent of the 1995-1999 cohort were born in Asia and only 14 percent in Northern, Western or Southern Europe. Furthermore, only immigrants from Northern, Western or Southern Europe have earnings that are not significantly below immigrants born in North America. Immigrants from all four Asian regions have earnings that are between 14 and 16 percent lower than immigrants from North America.

These results suggest that roughly one-third of the long-term decline in the entry earnings of Canadian immigrant cohorts can be explained by compositional shifts in language abilities and regions of origin of immigrants. Of particular importance is the shift away from Europeans with an English mother tongue (essentially Great Britain) to immigrants from Asia with a foreign mother tongue. Unfortunately, we are unable to identify the underlying factors driving our estimated language and region of origin wage effects. Although the language effects may capture real productivity differentials, the region effects probably reflect omitted or unobserved characteristics that have more direct wage effects and are correlated with the region of birth. This could include familiarity with Canadian labour markets, access to effective social networks and discrimination.

[10] Note that unilingual and bilingual are defined in terms of English and French only. A unilingual English speaker may speak another language that is not French.

3.4. Declining returns to foreign educational credentials

It is possible that shifts in the country of origin of immigrant cohorts have played a larger role than the above-mentioned results suggest. This could arise if there have been concomitant changes in the returns to experience or education from the regions that account for a growing share of Canada's immigrants or if the composition of immigrants from given regions has changed in some way that is related to earnings. The limitation of the specification in Table 4 is that it restricts the region of origin effects to be constant over time. In the following two subsections, we extend these simple fixed effects by allowing the wage returns to foreign experience and education to vary between cohorts. Technological change in Canada that has progressed differently than in other parts of the world or a shift from refugee to economic class immigrants within given regions are two possible reasons why we might expect to find changes in the returns to experience and education across cohorts. In this section, we address the possibility of declining returns to foreign credentials.

It is well known that the educational attainment of immigrant arrival cohorts has been increasing over time as a result of changes in the selection process. It is therefore puzzling to policymakers that over the same period the entry earnings of immigrants have been declining. One explanation often proposed is that, unlike the selection process, Canadian employers no longer recognize the foreign credentials of immigrants. This explanation is however at odds with our results above—roughly equal returns for immigrants to schooling obtained in Canada and abroad. The problem with these results is that they fail to distinguish between years of schooling attended and the credentials attained. In the context of immigrants, this distinction is likely to be particularly important since the same years of schooling may imply very different credentials under different schooling systems.

Using the 3 percent public-use files of the 1981, 1986, 1991, and 1996 Censuses, Ferrer and Riddell (2003) explore the role of declining returns to foreign credentials after controlling for years of schooling. In this respect, the Census data offer a definite advantage over alternative data sources as they provide separate information on years of schooling and all credentials obtained. Challenging popular perceptions, their results suggest that credential, or "sheepskin" effects are, if anything, higher for immigrants than Canadian-born. A potentially significant complication with their analysis though is that the Census data do not identify whether the credentials of immigrants were obtained abroad or in Canada. To improve the likelihood that the credentials of their immigrant sample are foreign, they restrict their sample to those with age migration greater than 35. This however cuts their sample size substantially and compromises the precision of their estimates.

Our approach to addressing the issue of declining returns to foreign credentials extends the work of Ferrer and Riddell (2003) in three important ways. First, rather than assume immigrant credentials are foreign we include separate indicators of Canadian and foreign credentials and allow the effects of Canadian credentials to vary between natives and immigrants. We distinguish foreign from Canadian high school, college and university credentials using separate information for each individual on highest year of grade school attended, years of college completed and years of university completed. If we assume that credentials are received in the final year of each level of schooling then we need only compare age at migration to the relevant years of schooling variable plus 6, to determine if the credential was obtained before or after migration.[11] Second, we add interactions between each foreign credential and our full set

[11] A minor complication is determining for those with a graduate degree in which year of the university education the bachelor and graduate degrees were received. Our approach is basically to assume that the first 4 years were spent obtaining the undergraduate degree and the residual years obtaining the graduate degree.

of cohort dummies to our complete model that distinguishes Canadian and foreign experience and years of schooling. Finally, we also include the 2001 Census data.

Before interacting credentials with immigrant cohort, in the first column of Table 6 we present estimates obtained from adding fixed credential effects. In interpreting the estimates it is important to note that Census respondents can report multiple credentials so we are not limited to a single "highest level of schooling" variable. This means we can distinguish a respondent who has a non-university certificate or diploma but no high school degree from someone who completed both. We define our high school diploma, non-university diploma or certificate, bachelor degree and graduate degree dummy variables cumulatively so that the high school diploma dummy equals 1 whether or not it is the highest credential obtained. Consistent with the findings of Ferrer and Riddell (2003), with the exception of high school diplomas, we find substantially larger credential effects for immigrants than Canadian-born men. Moreover, our results reveal that this is true whether the credentials are Canadian or foreign. So for example, completion of a university degree raises the earnings of immigrants by 35 percent if it is a Canadian degree and 26 percent if it is foreign, but raises the earnings of the Canadian-born by only 19 percent. Similarly for graduate degrees, Canadian-born men obtain a return of only 2 percent, while an immigrant with a Canadian degree receives an 11 percent return and an immigrant with a foreign graduate degree receives a 12 percent return. Higher returns to credentials for immigrants shows that having a degree is much more important for an immigrant than a Canadian person. However, this does not mean that immigrants earn more than comparable Canadian-born with the same degrees, since the returns to Canadian and foreign years of schooling are substantially lower for immigrants. For example, assuming it takes 16 years to complete university, our estimates suggest an immigrant with a foreign bachelor's degree will have earnings that are 29 percent less than a comparable Canadian-born. The point is that immigrants with given amounts of education earn substantially less than comparable Canadian-born, but having a credential significantly reduces this gap.

What explains lower returns to years of schooling and higher returns to credentials for immigrants? When we estimate the same specification for the sample of immigrants who arrived before the age of 18, we no longer get lower returns to years of schooling. This suggests that this differential is being driven by the fact that our sample of immigrants are, on average, obtaining higher levels of Canadian schooling where the marginal returns to additional years are low. Nonetheless, we continue to identify relatively large effects of credentials beyond high school for immigrants who arrived as children. Although we are unable to identify the precise cause of these effects, they are consistent with selection stories in which the selection into upper level education programs is more positive for immigrants or with the notion that immigrants have access to fewer or inferior social networks so that credentials are a more important determinant of obtaining high wage jobs for immigrants than they are for the Canadian-born.

With respect to our estimated cohort effects, the addition of credentials in the first column of Table 6 has little impact. The 1990-1994 dummy continues to suggest entry earnings that are 24 percent lower than the 1965-1969 cohort, while the 1995-1999 cohort estimate increases slightly in magnitude to 20 percent. This is, of course, consistent with bigger credential effects for immigrants over all immigrant cohorts and an increase in the share of immigrants with credentials in the most recent cohort. Indeed, in our sample of full-year, full-time immigrant men, the percentage reporting a university degree increased from 30 to 47 percent between the 1990-1994 and 1995-1999 cohorts. This represents a dramatic increase when one considers that the share increased from 24 to 30 percent over the entire period between the 1965-1969 and 1990-1994 cohorts.

We also find no evidence that these large returns to foreign credentials have been declining across immigrant cohorts. Actually, if anything our cohort interactions suggest a slight increase in the return to a foreign graduate degree (for the sake of limiting space we do not report these interactions). Combined

with the historically high proportion of men in the most recent cohort with an upper level credential, the 1995-1999 cohort effect estimate becomes even more negative while the others remain essentially unchanged. As a result, the results no longer suggest a modest reversal in the relative entry earnings of the most recent cohort. Rather, once we control for foreign credentials and allow the returns to vary across cohorts, we find that the entry earnings of the 1995-1999 cohort were 23 percent lower than the 1965-1969, which is identical to the differential between the 1990-1994 and 1965-1969 cohorts.

3.5. Declining returns to foreign experience and years of schooling

In the final column of Table 6, we follow Green and Worswick (2003) and allow the returns to foreign labour market experience to vary between immigrant cohorts. In addition, we introduce interactions of foreign years of schooling and cohort. We make these extensions simultaneously because we find our schooling results are somewhat sensitive to whether or not we first introduce the foreign experience interactions. When introduced together, the results suggest substantial declines in the returns to foreign experience, corroborating the findings of Green and Worswick, and little or no decrease in the returns to foreign years of schooling. Our foreign experience interactions are remarkably strong implying a monotonic deterioration in the value of experience obtained abroad from the latter half of the 1960s to the latter half of the 1990s. Whereas the linear return to foreign experience for the 1965-1969 cohort is 1.9 percent, the 1995-1999 cohort received a return of only 0.7 percent. With respect to years of schooling, we find a small decline in the return to an additional year from 2.9 percent to 2.7 percent between the 1965-69 and 1995-1999 cohort. This difference, is however, not statistically significant. This result combined with no change across cohorts in the return to credentials suggests that more recent immigrant arrival cohorts are not receiving lower returns to their foreign education. Most importantly, given our focus, once we allow the returns to foreign experience and years of schooling to vary between cohorts, our estimated cohort effects imply that the entry earnings of the 1995-1999 cohort would otherwise be only 8 percent lower than those of the 1965-1969 cohort. This suggests that roughly one-third of the overall deterioration in entry earnings can be explained by declining returns to foreign labour market experience. The 1995-1999 cohort effect is, however, no longer statistically significant at any reasonable confidence level.

Although we are controlling for region of birth, broad compositional shifts, such as the shift from European to Asian immigrants, can account for the declining returns to foreign experience if foreign experience from the growing immigrant source regions of the world is, and always has been, valued less. The deterioration is, however, also consistent with declining returns within given regions or compositional shifts within regions, such as a shift away from economic class immigrants to refugees. In Table 7 we take a step forward in addressing this issue by estimating the specification given in the third column of Table 6 for two different samples of immigrants: (i) those born in the West, which we define as including North America, Northern Europe, Western Europe and Southern Europe; and (ii) those born in the East, which we define as including Eastern Europe, Africa and Asia. Given the growing importance of immigration from the East and the popular perception that immigrants from non-traditional sources are facing challenges in having their foreign experience and education recognized by Canadian employers, we might expect to find stronger deterioration across cohorts in the Eastern sample.[12]

The results in Table 7 provide strong evidence supporting our hypothesis. The linear return to foreign experience for the earliest cohort from the eastern regions is roughly half of the return obtained by the same cohort from the western regions. The returns to years of schooling, on the other hand, are very similar. However, immigrant cohorts arriving over the period from 1970 to 1999 from western regions

[12] In work done simultaneously with ours, Green and Worswick (2003) make a similar comparison between immigrants from traditional and non-traditional source countries.

have experienced a very mild and statistically insignificant decline in the return to their foreign experience, whereas those from eastern regions have seen a strong deterioration to the point that the foreign experience of the most recent cohort was essentially worthless in Canada. We also continue to find essentially no deterioration in the returns to either foreign years of schooling or foreign educational credentials when immigrants from western and eastern regions are considered separately. Together these results suggest that roughly one-third of the overall decline in the entry earnings of Canada's immigrant cohorts has been driven by a deterioration in the returns to labour market experience from non-traditional source countries. We are however unable to identify to what extent this decline is due to compositional changes within these broad regions and to what extent it reflects the possibility that the same foreign experience is valued less by Canadian employers in the 1990s than it was in the 1960s.

3.6. Effe of labour market entry conditions

In the full sample of all immigrants, the 1995-1999 cohort effect is statistically insignificant once we allow the returns to foreign experience and schooling to vary between cohorts (third specification of Table 6). However, when we split the sample into western and eastern regions, we get substantially larger estimates (in absolute value), particularly in the western regions sample where we find no evidence of a long-term deterioration in the return to foreign experience. In fact, in both samples, the 1995-1999 cohort effect estimates are significant at the 10 percent level. The question is, what explains the remaining deterioration in entry earnings?

In this section, we consider to what extent macro labour market conditions at the time of arrival can explain the remaining cohort effects. The early 1990s recession in Canada was particularly severe with unemployment rates for men peaking at 12 percent in 1992 and 1993. This recession was then followed by a recovery, in which employment gains were concentrated in the self-employed sector. In this harsh macro environment, immigrants from non-traditional source countries may be especially vulnerable because they have had less time to become familiar with local labour markets and to establish social networks to improve the likelihood of making successful job transitions. Indeed, there is evidence that entering labour markets during poor macro conditions may have permanent scarring effects on the future earnings of immigrants (see Aydemir, 2003 for evidence using Canadian data; Chiswick, Cohen and Zach, 1997, offer evidence for the U.S.). In addition to these business cycle effects, Beaudry and Green (2000) show in a sample of both immigrant and Canadian-born men that successive labour market entry cohorts have experienced a gradual deterioration in their entry earnings. Motivated by this observation, Green and Worswick (2003) introduce native cohort effects into their analysis of immigrant earnings in an attempt to control for an economy-wide decline which is assumed to have affected immigrants and natives identically.

In Table 8, we add the entry year national male unemployment rate to our previous specification and allow it to affect Canadian-born and immigrants differently. In the same specification, we also follow Green and Worswick (2003) and add a full set of cohort effects for the Canadian-born. We define the year of labour market entry for the Canadian-born as the year following the final year of school. We introduce these two effects simultaneously because we are unable to disentangle the effects of an upward trend in the unemployment rate between 1965 and 1980 and the concomitant downward trend in native cohort effects. By including both, we allow the native cohort effects to capture the long-term secular decline in the entry earnings of all men, while our entry unemployment rate is left to identify changing macro conditions within entry cohorts. The first two columns of Table 8 present the results for the western and eastern regions. In the final column, we present the results from our full sample of immigrants.

Consistent with the findings of Green and Worswick (2003), our results suggest a clear pattern of deteriorating earnings across Canadian-born labour market entry cohorts. Specifically, our estimates

suggest that the earnings of Canadian-born men who entered the Canadian labour market in the period between 1995 and 1999 were 27 percent lower than their counterparts who entered the Canadian labour market between 1965 and 1969. In addition, our results imply significant negative effects of the entry unemployment rate on the earnings of both Canadian-born and immigrants. Although the point estimates on the immigrant interaction term are large in all the samples, suggesting immigrants' earnings are more sensitive to entry macro conditions, in none of the samples are they statistically different from zero. When we assume that our immigrant entry cohorts experienced identical earnings effects as natives and we allow for entry macro conditions to influence earnings, particularly those of the 1990-1994 cohort, all our immigrant cohort effects in our full sample become positive and significant. Comparing the results between our western and eastern immigrant samples, we now find that the most recent cohort from traditional source countries had entry earnings that were essentially no different from the 1965-1969 cohort, while the differential between these cohorts in our non-traditional source country sample implies 15 percent higher earnings for the most recent cohort. The important question is whether or not it is reasonable to assume that immigrants from both regions experienced identical entry challenges as Canadian-born labour market entrants in the 1980s and 1990s. Given that the literature remains unsure of what caused the broader deterioration in entry earnings, one must arguably exercise caution in interpreting the resulting differentials between immigrant cohorts. To the extent that immigrants have faced weaker (stronger) entry effects than their Canadian-born counterparts, our positive cohort effects will tend to overstate (understate) the earnings potential of Canada's most recent immigrant cohorts.

4. Predicted Earnings Profiles

To this point, we have not discussed the implications of our estimates for changes in earnings growth between immigrant cohorts. In Figures 1 and 2, we plot relative earnings profiles based on our estimates from the standard "years since migration" specification (column 1 in Table 1) and from our complete specification which distinguishes Canadian from foreign experience and education, and recognizes changing entry macro conditions (column 3 in Table 8). Both figures are drawn for an immigrant who arrives in Canada with a foreign bachelor's degree, 6.7 years of foreign work experience and 14.3 years of foreign schooling—the mean years of foreign experience and years of schooling in our immigrant sample. We compare this immigrant to a Canadian-born with a university degree and the same levels of work experience and schooling. For both figures, we include the full set of estimates in predicting the cohort earnings profiles.

Figure 1 illustrates earnings differentials that are increasing with each immigrant entry cohort. The exception is the most recent immigrant cohort whose relative entry earnings fall between the 1985-1989 and 1990-1994 cohorts. There is also little evidence that immigrants ever catch-up to the earnings of comparable Canadian-born. Consistent with the findings of Green and Worswick (2003), we do find relatively high assimilation rates for the 1990s cohorts, but given their large entry effects they still face substantial gaps 20 years after arrival. In fact, one must be careful in interpreting the profiles of the most recent cohorts since they involve considerable out-of-sample predictions. Indeed, our linear assimilation estimate for the 1995-1999 is statistically insignificant.

In Figure 2, we obtain a very different perspective on the relative earnings growth of immigrant cohorts. When we introduce Canadian-born cohort effects, there is no longer any evidence of a deterioration in immigrant entry earnings. The predicted profiles now suggest all cohorts had entry earnings that were between 7 and 20 percent lower than comparable Canadian-born. Moreover, all the profiles imply earnings assimilation, so that 20 years after arrival only the 1985-1989 cohort continues to face a gap exceeding 5 percent. In fact, our estimates suggest that immigrants who arrived in Canada between 1995

and 1999 will have matched the earnings of similar Canadian-born men by their fourth year in Canada. Once again however, given that we, on average, observe only 2.5 years of future earnings for this cohort, it is possible that we are simply capturing a relatively steep portion of an underlying earnings profile that is no different from that of earlier cohorts. The important point from Figure 2 is that, overlooking the predicted earnings growth for the most recent cohort, the estimates from our most flexible specification that distinguishes foreign from Canadian experience, years of schooling and credentials, and allows the returns to the foreign components to vary between cohorts, produces earnings profiles that are much more consistent with our prior beliefs.

5. Summary

The major finding from our analysis is that roughly one-third of the overall deterioration in the entry earnings of Canada's immigrant cohorts can be explained by declining wage returns to foreign labour market experience which has occurred almost exclusively among immigrants originating from non-traditional source countries. We find little or no evidence that the returns to foreign education are responsible for the deterioration. This is true whether we estimate the return to foreign educational credentials or to foreign years of schooling.

We also find another one-third of the deterioration can be explained by the shift away from traditional European source countries to non-traditional Asian sources and the resulting weakening of English and French language abilities of new immigrants. We emphasize that these broad compositional shifts are not responsible for the declining returns to foreign experience. Our results indicate that declining returns to experience obtained abroad has, in fact, occurred almost exclusively among immigrants from Eastern regions, including Eastern Europe, Africa and Asia. Whether they are due to compositional shifts within these regions, say from economic class immigrants to refugees, or to actual declines in the value that Canadian markets put on the value of labour market experience from these regions remains unclear. We leave these important questions to future research.

Finally, we find that any cohort effects that remain after controlling for the language ability and region of birth and allowing the returns to foreign experience to vary between cohorts can be explained with reference to the broader deterioration in entry earnings experienced by Canadian-born labour market entrants. In fact, when we follow Green and Worswick (2003) and assume that immigrant cohorts experienced identical entry effects to their Canadian-born counterparts, our estimates suggest that Canada's immigrants who arrived in the 1995-1999 period would otherwise have experienced entry earnings that were 23 percent higher than the entry earnings of immigrants arriving between 1965 and 1969. However, given that the literature remains unclear about the cause of this broader economy-wide trend in entry earnings, we are hesitant to interpret this estimate as an indication of improved "quality" of more recent immigrant arrivals.

Table 1 **OLS regression of log earnings on total experience and years since migration**

	(1)		(2)	
Total experience	0.0536*	(0.0004)	0.0627*	(0.0004)
Total experience^2/100	-0.1033*	(0.0010)	-0.1316*	(0.0013)
Total years of schooling	0.0783*	(0.0003)	0.0846*	(0.0003)
Unemployment rate	-0.0176*	(0.0003)	-0.0177*	(0.0003)
Immigrant dummy variable	0.0346	(0.0267)	0.5190*	(0.0288)
1970-74 cohort*immigrant	-0.0517*	(0.0197)	-0.0254	(0.0201)
1975-79 cohort*immigrant	-0.1118*	(0.0232)	-0.0691*	(0.0242)
1980-84 cohort*immigrant	-0.2439*	(0.0257)	-0.1873*	(0.0275)
1985-89 cohort*immigrant	-0.3552*	(0.0275)	-0.2875*	(0.0292)
1990-94 cohort*immigrant	-0.5612*	(0.0294)	-0.4806*	(0.0317)
1995-99 cohort*immigrant	-0.4708*	(0.0351)	-0.3859*	(0.0360)
Years since migration (ysm)	0.0019	(0.0024)	0.0094*	(0.0025)
ysm*1970-74 cohort	-0.0022*	(0.0010)	-0.0032*	(0.0010)
ysm*1975-79 cohort	-0.0017	(0.0012)	-0.0035*	(0.0013)
ysm*1980-84 cohort	0.0006	(0.0016)	-0.0024	(0.0017)
ysm*1985-89 cohort	0.0027	(0.0021)	-0.0014	(0.0022)
ysm*1990-94 cohort	0.0178*	(0.0028)	0.0123*	(0.0031)
ysm*1995-99 cohort	0.0124	(0.0070)	0.0067	(0.0070)
ysm^2/100	-0.0079	(0.0051)	-0.0239*	(0.0055)
Total experience*immigrant			-0.0304*	(0.0009)
Total experience^2/100*immigrant			0.0789*	(0.0024)
Total years of schooling*immigrant			-0.0215*	(0.0006)
Unemployment rate*immigrant			-0.0044*	(0.0010)
Constant	9.0901*	(0.0050)	8.9468*	(0.0057)
R^2	0.1444		0.1475	
Canadian-born sample	404,033		404,033	
Immigrant sample	413,901		413,901	

Note: Standard errors are in parentheses.
Samples are restricted to individuals aged 18 to 54, with positive earnings, who reported working mostly full-time for 52 weeks in the income reference year. Immigrants who migrated before 1965 and natives who entered the Canadian labour market before 1965 are dropped from the sample. Institutional residents and those living in the territories are also excluded.
* indicates significance at the 5 percent level.

Table 2 **OLS regression of log earnings on Canadian and foreign experience and education**

	Age at migration				
	0-17	18-24	25-34	35-44	All ages
Canadian experience	0.0627*	0.0627*	0.0498*	0.0338*	0.0627*
	(0.0005)	(0.0005)	(0.0006)	(0.0018)	(0.0004)
Canadian experience^2/100	-0.1316*	-0.1316*	-0.1004*	-0.0630*	-0.1316*
	(0.0015)	(0.0015)	(0.0016)	(0.0040)	(0.0013)
Canadian school years	0.0846*	0.0846*	0.0808*	0.0807*	0.0846*
	(0.0004)	(0.0003)	(0.0004)	(0.0006)	(0.0003)
Unemployment rate	-0.0177*	-0.0177*	-0.0161*	-0.0142*	-0.0177*
	(0.0004)	(0.0004)	(0.0004)	(0.0006)	(0.0003)
Immigrant dummy variable	-0.1839*	0.1548*	0.4186*	0.9351*	0.3224*
	(0.0355)	(0.0423)	(0.0359)	(0.1071)	(0.0141)
Canadian experience*immigrant	0.0076*	-0.0027	-0.0007	0.0002	-0.0062*
	(0.0025)	(0.0023)	(0.0022)	(0.0079)	(0.0012)
(Canadian experience^2/100)*immigrant	-0.0096	0.0122	-0.0027	-0.0145	0.0193*
	(0.0089)	(0.0068)	(0.0070)	(0.0305)	(0.0036)
Foreign experience	0.0928*	0.0138*	-0.0167*	-0.0456*	0.0142*
	(0.0223)	(0.0048)	(0.0026)	(0.0067)	(0.0011)
Foreign experience^2/100	-0.2211	0.2011*	0.1103*	0.0934*	-0.0247*
	(0.2143)	(0.0293)	(0.0101)	(0.0160)	(0.0034)
Canadian school years*immigrant	0.0059*	-0.0083*	-0.0507*	--	-0.0208*
	(0.0018)	(0.0031)	(0.0090)		(0.0008)
Foreign school years	0.0859*	0.0698*	0.0580*	0.0455*	0.0609*
	(0.0022)	(0.0024)	(0.0014)	(0.0030)	(0.0005)
Canadian*foreign experience	0.0003	-0.0005*	-0.0002*	0.0003	-0.0003*
	(0.0008)	(0.0002)	(0.0001)	(0.0003)	(0.0000)
Unemployment rate*immigrant	-0.0022	-0.0056*	-0.0049*	-0.0052	-0.0034*
	(0.0025)	(0.0020)	(0.0016)	(0.0030)	(0.0009)
Constant	8.9468*	8.9468*	9.1055*	9.2493*	8.9468*
	(0.0068)	(0.0066)	(0.0080)	(0.0242)	(0.0057)
R^2	0.1519	0.1495	0.1097	0.1000	0.1451
Canadian-born sample	404,033	404,033	363,356	196,252	404,033
Immigrant sample	82,930	106,399	164,866	52,544	413,901

Note: Standard errors are in parentheses.

Samples are restricted to individuals with positive earnings, who reported working mostly full-time for 52 weeks in the income reference year. In addition to the age at migration restrictions, the immigrant sample is restricted to immigrants aged 18 to 54 in the census year. The Canadian-born samples restrict current age to between 18 and 54, or the lower bound of the immigrant by age of migration (if this greater than 18) and 54. Immigrants who migrated before 1965 and natives who entered the Canadian labour market before 1965 are dropped from the sample. Institutional residents and those living in the territories are also excluded.

* indicates significance at the 5 percent level.

Table 3 **OLS regression of log earnings on immigrant cohort entry and assimilation effects**

	(1)		(2)	
Canadian experience	0.0627*	(0.0004)	0.0627*	(0.0004)
Canadian experience^2/100	-0.1316*	(0.0013)	-0.1316*	(0.0013)
Canadian school years	0.0846*	(0.0003)	0.0846*	(0.0003)
Unemployment rate	-0.0177*	(0.0003)	-0.0177*	(0.0003)
Immigrant dummy variable	0.6087*	(0.0155)	0.4855*	(0.0207)
1970-74 cohort*immigrant	-0.0898*	(0.0058)	0.0018	(0.0149)
1975-79 cohort*immigrant	-0.1298*	(0.0064)	-0.0055	(0.0165)
1980-84 cohort*immigrant	-0.2314*	(0.0073)	-0.0890*	(0.0188)
1985-89 cohort*immigrant	-0.3109*	(0.0081)	-0.1548*	(0.0202)
1990-94 cohort*immigrant	-0.4141*	(0.0089)	-0.3134*	(0.0226)
1995-99 cohort*immigrant	-0.3574*	(0.0120)	-0.2417*	(0.0290)
Canadian experience*immigrant	-0.0211*	(0.0012)	-0.0095*	(0.0018)
Canadian experience*1970-74 cohort*immigrant			-0.0054*	(0.0009)
Canadian experience*1975-79 cohort*immigrant			-0.0079*	(0.0010)
Canadian experience*1980-84 cohort*immigrant			-0.0101*	(0.0014)
Canadian experience*1985-89 cohort*immigrant			-0.0130*	(0.0018)
Canadian experience*1990-94 cohort*immigrant			-0.0046	(0.0026)
Canadian experience*1995-99 cohort*immigrant			-0.0054	(0.0069)
(Canadian experience^2/100)*immigrant	0.0393*	(0.0037)	0.0169*	(0.0048)
Foreign experience	0.0205*	(0.0011)	0.0196*	(0.0011)
Foreign experience^2/100	-0.0352*	(0.0034)	-0.0342*	(0.0034)
Canadian school years*immigrant	-0.0278*	(0.0008)	-0.0267*	(0.0008)
Foreign school years	0.0629*	(0.0005)	0.0631*	(0.0005)
Canadian*foreign experience	-0.0005*	(0.0000)	-0.0005*	(0.0001)
Unemployment rate*immigrant	-0.0052*	(0.0009)	-0.0064*	(0.0010)
Constant	8.9468*	(0.0057)	8.9468*	(0.0057)
R^2	0.1479		0.1480	
Canadian-born sample	404,033		404,033	
Immigrant sample	413,901		413,901	

Note: Standard errors are in parentheses.
Samples are restricted to individuals aged 18 to 54, with positive earnings, who reported working mostly full-time for 52 weeks in the income reference year. Immigrants who migrated before 1965 and natives who entered the Canadian labour market before 1965 are excluded from the sample. Institutional residents and those living in the territories are also excluded.
* indicates significance at the 5 percent level.

Table 4 **OLS regression of log earnings controlling for province of residence, language, and region of birth**

	Specification					
	(1)		(2)		(3)	
Canadian experience	0.0516*	(0.0004)	0.0515*	(0.0004)	0.0516*	(0.0004)
Canadian experience^2/100	-0.1060*	(0.0013)	-0.1061*	(0.0013)	-0.1063*	(0.0013)
Canadian school years	0.0774*	(0.0003)	0.0755*	(0.0003)	0.0754*	(0.0003)
Unemployment rate	-0.0139*	(0.0005)	-0.0140*	(0.0005)	-0.0140*	(0.0005)
Immigrant dummy variable	0.3458*	(0.0206)	0.4016*	(0.0207)	0.4035*	(0.0226)
1970-74 cohort*immigrant	-0.0107	(0.0148)	-0.0077	(0.0148)	0.0296*	(0.0148)
1975-79 cohort*immigrant	-0.0168	(0.0163)	-0.0105	(0.0163)	0.0351*	(0.0163)
1980-84 cohort*immigrant	-0.1010*	(0.0186)	-0.0828*	(0.0186)	-0.0270	(0.0187)
1985-89 cohort*immigrant	-0.1764*	(0.0200)	-0.1459*	(0.0200)	-0.0720*	(0.0201)
1990-94 cohort*immigrant	-0.3413*	(0.0224)	-0.3045*	(0.0224)	-0.2276*	(0.0224)
1995-99 cohort*immigrant	-0.2656*	(0.0287)	-0.2256*	(0.0287)	-0.1517*	(0.0287)
Canadian experience*immigrant	-0.0089*	(0.0018)	-0.0089*	(0.0018)	-0.0090*	(0.0018)
Canadian experience*1970-74 cohort*immigrant	-0.0048*	(0.0008)	-0.0048*	(0.0008)	-0.0043*	(0.0008)
Canadian experience*1975-79 cohort*immigrant	-0.0070*	(0.0010)	-0.0070*	(0.0010)	-0.0065*	(0.0010)
Canadian experience*1980-84 cohort*immigrant	-0.0086*	(0.0013)	-0.0085*	(0.0013)	-0.0079*	(0.0013)
Canadian experience*1985-89 cohort*immigrant	-0.0107*	(0.0018)	-0.0112*	(0.0018)	-0.0108*	(0.0018)
Canadian experience*1990-94 cohort*immigrant	-0.0014	(0.0026)	-0.0021	(0.0026)	-0.0016	(0.0026)
Canadian experience*1995-99 cohort*immigrant	-0.0034	(0.0068)	-0.0045	(0.0068)	-0.0031	(0.0068)
(Canadian experience^2/100)*immigrant	0.0140*	(0.0047)	0.0148*	(0.0047)	0.0129*	(0.0047)
Foreign experience	0.0122*	(0.0011)	0.0112*	(0.0011)	0.0094*	(0.0011)
Foreign experience^2/100	-0.0228*	(0.0034)	-0.0185*	(0.0034)	-0.0130*	(0.0034)
Canadian school years*immigrant	-0.0197*	(0.0008)	-0.0211*	(0.0008)	-0.0218*	(0.0009)
Foreign school years	0.0610*	(0.0005)	0.0583*	(0.0005)	0.0584*	(0.0006)
Canadian*foreign experience	-0.0002*	(0.0001)	-0.0002*	(0.0001)	-0.0002*	(0.0001)
Unemployment rate*immigrant	-0.0047*	(0.0010)	-0.0051*	(0.0010)	-0.0047*	(0.0010)
Other controls						
Marital status, Province, Toronto, Montreal, Vancouver, Rural status	YES		YES		YES	
Mother tongue*knowledge of official languages	NO		YES		YES	
Region of birth	NO		NO		YES	
R^2						
Canadian-born sample	404,033		403,466		403,466	
Immigrant sample	413,901		413,308		413,308	

Note: Standard errors in parentheses.

Samples restricted to individuals aged 18 to 54 with positive earnings who reported working mostly full-time for 52 weeks in the income reference year. Immigrants who migrated before 1965 and natives who entered the Canadian labour market before 1965 are dropped from the sample. Institutional residents and those living in the territories are also dropped. The effects and means of language and region of birth are shown in Table 5. Five hundred and sixty-seven Canadian-born and 338 immigrants have implausible language variable codings (e.g., mother tongue is French and no current knowledge of French) and are dropped from the sample.

* indicates significance at the 5 percent level.

Table 5 **Effect on earnings and sample proportions of province of residence, language and region of birth**

	Earnings Return		Year of Migration (19--)						
			65-69	70-74	75-79	80-84	85-89	90-94	95-99
Province of residence									
Newfoundland	-0.0208*	(0.0086)	0.003	0.003	0.003	0.002	0.002	0.002	0.001
Prince Edward Island	-0.2126*	(0.0136)	0.001	0.001	0.001	0.001	0.001	0.000	0.000
New Brunswick	-0.1208*	(0.0054)	0.010	0.010	0.009	0.009	0.007	0.005	0.005
Nova Scotia	-0.1063*	(0.0062)	0.004	0.006	0.006	0.005	0.003	0.002	0.002
Montreal	-0.0848*	(0.0035)	0.114	0.097	0.112	0.109	0.100	0.107	0.101
Rest of Quebec	-0.1375*	(0.0036)	0.016	0.013	0.019	0.017	0.013	0.012	0.013
(Toronto)	--	--	0.365	0.396	0.367	0.369	0.477	0.465	0.469
Rest of Ontario	-0.0669*	(0.0026)	0.226	0.180	0.159	0.155	0.155	0.134	0.132
Manitoba	-0.1837*	(0.0043)	0.030	0.030	0.034	0.042	0.032	0.025	0.022
Saskatchewan	-0.2136*	(0.0047)	0.009	0.009	0.013	0.013	0.007	0.007	0.008
Alberta	-0.0515*	(0.0031)	0.075	0.088	0.125	0.132	0.075	0.077	0.078
Vancouver	-0.0140*	(0.0038)	0.097	0.117	0.113	0.114	0.107	0.139	0.149
Rest of British Columbia	-0.0258*	(0.0041)	0.051	0.050	0.040	0.033	0.021	0.024	0.021
Mother tongue*knowledge of official language									
(English*english unilingual)	--	--	0.407	0.411	0.391	0.297	0.232	0.192	0.168
English*bilingual	0.0440*	(0.0036)	0.049	0.040	0.036	0.026	0.017	0.014	0.011
French*french uniligual	-0.0692*	(0.0046)	0.011	0.008	0.013	0.010	0.006	0.008	0.009
French*bilingual	0.0347*	(0.0036)	0.030	0.026	0.029	0.022	0.019	0.019	0.025
Foreign*english unilingual	-0.0946*	(0.0032)	0.401	0.430	0.422	0.519	0.599	0.631	0.666
Foreign*french unilingual	-0.1898*	(0.0159)	0.009	0.009	0.016	0.021	0.019	0.018	0.016
Foreign*bilingual	-0.0676*	(0.0064)	0.083	0.062	0.077	0.075	0.072	0.076	0.072
Foreign*neither	-0.2006*	(0.0137)	0.009	0.014	0.016	0.028	0.034	0.041	0.032
Region of birth									
(North America)	--	--	0.056	0.077	0.055	0.043	0.031	0.021	0.020
Central America	-0.1531*	(0.0179)	0.003	0.006	0.008	0.020	0.044	0.034	0.019
Caribbean	-0.2087*	(0.0111)	0.051	0.092	0.079	0.050	0.056	0.055	0.041
South America	-0.1373*	(0.0121)	0.019	0.053	0.066	0.054	0.057	0.047	0.034
Northern Europe	0.1067*	(0.0095)	0.270	0.172	0.177	0.130	0.065	0.047	0.036
Western Europe	0.0117	(0.0115)	0.094	0.049	0.056	0.054	0.034	0.031	0.042
Southern Europe	-0.0033	(0.0105)	0.284	0.174	0.108	0.056	0.058	0.060	0.062
Eastern Europe	-0.0393*	(0.0117)	0.046	0.024	0.033	0.096	0.111	0.113	0.115
Africa	-0.0714*	(0.0115)	0.032	0.059	0.067	0.053	0.076	0.075	0.080
South Asia	-0.1360*	(0.0107)	0.042	0.103	0.079	0.089	0.112	0.153	0.203
Southeast Asia	-0.1622*	(0.0108)	0.015	0.058	0.118	0.196	0.142	0.116	0.095
East Asia	-0.1504*	(0.0107)	0.052	0.098	0.098	0.101	0.133	0.163	0.174
West Asia	-0.1545*	(0.0128)	0.024	0.023	0.040	0.048	0.073	0.075	0.070
Oceania and other	-0.0175	(0.0183)	0.012	0.015	0.017	0.011	0.009	0.012	0.010

Note: Standard errors in parentheses.
The province of residence return to earnings estimates are from 1 of Table 4, the language returns are from 2 of Table 4, and the region of birth returns are from 3 of Table 4.
* indicates significance at the 5 percent level.

Table 6 **OLS regression of earnings on Canadian and foreign credentials and years of schooling by entry cohort**

	Specification					
	(1)		(2)		(3)	
Canadian experience	0.0511*	(0.0004)	0.0511*	(0.0004)	0.0511*	(0.0004)
Canadian experience^2/100	-0.1057*	(0.0013)	-0.1057*	(0.0013)	-0.1057*	(0.0013)
Canadian school years	0.0508*	(0.0005)	0.0508*	(0.0005)	0.0508*	(0.0005)
Canadian high school diploma	0.0594*	(0.0022)	0.0594*	(0.0022)	0.0594*	(0.0022)
Canadian non-university certificate or diploma	0.0417*	(0.0020)	0.0417*	(0.0020)	0.0417*	(0.0020)
Canadian university bachelor's degree	0.1854*	(0.0033)	0.1854*	(0.0033)	0.1854*	(0.0033)
Canadian university graduate degree	0.0246*	(0.0047)	0.0246*	(0.0047)	0.0246*	(0.0047)
Unemployment rate	-0.0139*	(0.0005)	-0.0139*	(0.0005)	-0.0138*	(0.0005)
Immigrant dummy variable	0.4080*	(0.0235)	0.4118*	(0.0236)	0.3714*	(0.0249)
1970-74 cohort*immigrant	0.0237	(0.0147)	0.0259	(0.0150)	0.0131	(0.0170)
1975-79 cohort*immigrant	0.0281	(0.0163)	0.0201	(0.0167)	-0.0085	(0.0199)
1980-84 cohort*immigrant	-0.0370*	(0.0187)	-0.0504*	(0.0195)	-0.0508*	(0.0256)
1985-89 cohort*immigrant	-0.0829*	(0.0201)	-0.0806*	(0.0216)	-0.0539	(0.0319)
1990-94 cohort*immigrant	-0.2419*	(0.0225)	-0.2299*	(0.0246)	-0.1290*	(0.0392)
1995-99 cohort*immigrant	-0.2007*	(0.0286)	-0.2316*	(0.0349)	-0.0778	(0.0613)
Canadian experience*immigrant	-0.0081*	(0.0018)	-0.0075*	(0.0018)	-0.0067*	(0.0018)
Canadian experience*1970-74 cohort*immigrant	-0.0039*	(0.0008)	-0.0039*	(0.0009)	-0.0038*	(0.0009)
Canadian experience*1975-79 cohort*immigrant	-0.0057*	(0.0010)	-0.0061*	(0.0010)	-0.0051*	(0.0011)
Canadian experience*1980-84 cohort*immigrant	-0.0067*	(0.0013)	-0.0072*	(0.0014)	-0.0059*	(0.0014)
Canadian experience*1985-89 cohort*immigrant	-0.0090*	(0.0018)	-0.0096*	(0.0018)	-0.0077*	(0.0018)
Canadian experience*1990-94 cohort*immigrant	0.0011	(0.0026)	0.0007	(0.0026)	0.0029	(0.0027)
Canadian experience*1995-99 cohort*immigrant	0.0039	(0.0068)	0.0041	(0.0068)	0.0072	(0.0068)
(Canadian experience^2/100)*immigrant	0.0115*	(0.0047)	0.0102*	(0.0047)	0.0113*	(0.0048)
Foreign experience	0.0138*	(0.0011)	0.0135*	(0.0011)	0.0188*	(0.0016)
Foreign experience*1970-74 cohort					-0.0002	(0.0010)
Foreign experience*1975-79 cohort					0.0002	(0.0011)
Foreign experience*1980-84 cohort					-0.0022	(0.0011)
Foreign experience*1985-89 cohort					-0.0038*	(0.0012)
Foreign experience*1990-94 cohort					-0.0088*	(0.0013)
Foreign experience*1995-99 cohort					-0.0119*	(0.0016)

Table 6 - *(continued)*

OLS regression of earnings on Canadian and foreign credentials and years of schooling by entry cohort

	Specification					
	(1)		(2)		(3)	
Foreign experience^2/100	-0.0296*	(0.0034)	-0.0289*	(0.0035)	-0.0269*	(0.0035)
Canadian school years*immigrant	-0.0300*	(0.0013)	-0.0303*	(0.0013)	-0.0279*	(0.0014)
Foreign school years	0.0291*	(0.0009)	0.0292*	(0.0009)	0.0291*	(0.0014)
Foreign school years*1970-74 cohort					0.0016	(0.0016)
Foreign school years*1975-79 cohort					0.0019	(0.0018)
Foreign school years*1980-84 cohort					0.0002	(0.0022)
Foreign school years*1985-89 cohort					-0.0015	(0.0025)
Foreign school years*1990-94 cohort					-0.0026	(0.0029)
Foreign school years*1995-99 cohort					-0.0022	(0.0042)
Canadian high school diploma*immigrant	0.0004	(0.0092)	0.0007	(0.0092)	0.0006	(0.0092)
Canadian non-university cert/dip*immigrant	0.0404*	(0.0081)	0.0395*	(0.0081)	0.0384*	(0.0081)
Canadian university bach. degree*immigrant	0.1635*	(0.0096)	0.1638*	(0.0097)	0.1604*	(0.0098)
Canadian university graduate degree*immigrant	0.0829*	(0.0137)	0.0811*	(0.0139)	0.0788*	(0.0139)
Foreign high school diploma	0.0434*	(0.0055)	0.0491*	(0.0106)	0.0557*	(0.0121)
Foreign non-university certificate or diploma	0.0630*	(0.0049)	0.0367*	(0.0101)	0.0416*	(0.0109)
Foreign university bachelor's degree	0.2567*	(0.0071)	0.2617*	(0.0167)	0.2647*	(0.0174)
Foreign university graduate degree	0.1216*	(0.0091)	0.0871*	(0.0236)	0.0881*	(0.0237)
Canadian*foreign experience	-0.0005*	(0.0001)	-0.0004*	(0.0001)	-0.0007*	(0.0001)
Unemployment rate*immigrant	-0.0052*	(0.0010)	-0.0053*	(0.0010)	-0.0045*	(0.0010)
Other controls						
Marital status, Province, Toronto, Montreal, Vancouver, Rural status	YES		YES		YES	
Mother tongue*knowledge of official languages	YES		YES		YES	
Region of birth	YES		YES		YES	
Foreign credentials*cohort*immigrant	NO		NO		YES	
R^2	0.1807		0.1808		0.1809	
Canadian-born sample	403,466		403,466		403,466	
Immigrant sample	413,308		413,308		413,308	

Note: Standard errors in parentheses.

Samples restricted to individuals aged 18 to 54, with positive earnings, who reported working mostly full-time for 52 weeks in the income reference year. Immigrants who migrated before 1965 and natives who entered the Canadian labour market before 1965 are excluded from the sample. Institutional residents and those living in the territories are also excluded. The language and region of birth means are shown in Table 5.

*indicates significance at the 5 percent level.

Table 7 **OLS regression of earnings on Canadian and foreign credentials and years of schooling by entry cohort**

	Western Regions				Eastern Regions			
Immigrant dummy variable	0.3202*	(0.0348)	0.3325*	(0.0360)	0.5373*	(0.0433)	0.4858*	(0.0478)
1970-74 cohort*immigrant	0.0131	(0.0219)	0.0049	(0.0243)	-0.0240	(0.0331)	-0.0497	(0.0395)
1975-79 cohort*immigrant	-0.0010	(0.0260)	-0.0292	(0.0314)	-0.0514	(0.0346)	-0.0850*	(0.0418)
1980-84 cohort*immigrant	-0.0629	(0.0338)	-0.1176*	(0.0465)	-0.1377*	(0.0373)	-0.1265*	(0.0469)
1985-89 cohort*immigrant	-0.1079*	(0.0427)	-0.1470*	(0.0702)	-0.1568*	(0.0401)	-0.1421*	(0.0548)
1990-94 cohort*immigrant	-0.2167*	(0.0559)	-0.1171	(0.1021)	-0.3297*	(0.0435)	-0.2615*	(0.0622)
1995-99 cohort*immigrant	-0.2539*	(0.0865)	-0.3325	(0.1833)	-0.3082*	(0.0547)	-0.1582	(0.0866)
Foreign experience	0.0304*	(0.0022)	0.0282	(0.0028)	0.0064*	(0.0018)	0.0138*	(0.0030)
Foreign experience*1970-74 cohort			0.0012	(0.0014)			-0.0010	(0.0023)
Foreign experience*1975-79 cohort			0.0033*	(0.0016)			-0.0016	(0.0023)
Foreign experience*1980-84 cohort			0.0015	(0.0020)			-0.0030	(0.0024)
Foreign experience*1985-89 cohort			0.0028	(0.0023)			-0.0047	(0.0024)
Foreign experience*1990-94 cohort			-0.0024	(0.0027)			-0.0094*	(0.0025)
Foreign experience*1995-99 cohort			-0.0014	(0.0038)			-0.0127*	(0.0028)
Foreign school years	0.0283*	(0.0015)	0.0263*	(0.0020)	0.0287*	(0.0014)	0.0277*	(0.0033)
Foreign school years*1970-74 cohort			0.0020	(0.0024)			0.0041	(0.0038)
Foreign school years*1975-79 cohort			0.0030	(0.0029)			0.0042	(0.0039)
Foreign school years*1980-84 cohort			0.0082*	(0.0041)			-0.0006	(0.0041)
Foreign school years*1985-89 cohort			0.0042	(0.0057)			0.0002	(0.0044)
Foreign school years*1990-94 cohort			-0.0033	(0.0076)			0.0006	(0.0047)
Foreign school years*1995-99 cohort			0.0129	(0.0128)			-0.0020	(0.0060)
R^2	0.1823		0.1823		0.1823		0.1824	
Canadian-born sample		403,466				403,466		
Immigrant sample		171,741				184,306		

Note: Standard errors in parentheses.

Both Western and Eastern specifications include same set of regressors as specifications 2 and 3 in Table 6. Samples restricted to individuals aged 18 to 54, with positive earnings, who reported working mostly full-time for 52 weeks in the income reference year. Immigrants who migrated before 1965 and natives who entered the Canadian labour market before 1965 are excluded from the sample. Institutional residents and those living in the territories are also excluded. Western regions are North America, and Northern, Western, and Southern Europe. The Eastern regions are Eastern Europe, Africa, and Asia. The language and region of birth means are shown in Table 5.

* indicates significance at the 5 percent level.

Table 8 **OLS regression of earnings on entry unemployment rate and native cohort effects**

	Western Regions		Eastern Regions		All Regions	
1970-74 cohort	-0.0336*	(0.0033)	-0.0338*	(0.0033)	-0.0339*	(0.0030)
1975-79 cohort	-0.0747*	(0.0037)	-0.0749*	(0.0038)	-0.0749*	(0.0034)
1980-84 cohort	-0.1197*	(0.0053)	-0.1199*	(0.0053)	-0.1201*	(0.0048)
1985-89 cohort	-0.1648*	(0.0053)	-0.1651*	(0.0053)	-0.1652*	(0.0048)
1990-94 cohort	-0.2271*	(0.0070)	-0.2276*	(0.0070)	-0.2278*	(0.0063)
1995-99 cohort	-0.2737*	(0.0078)	-0.2746*	(0.0079)	-0.2749*	(0.0071)
Canadian work experience	0.0416*	(0.0005)	0.0418*	(0.0005)	0.0419*	(0.0005)
Canadian work experience^2/100	-0.0935*	(0.0015)	-0.0939*	(0.0015)	-0.0942*	(0.0013)
Canadian school years	0.0570*	(0.0006)	0.0572*	(0.0006)	0.0573*	(0.0005)
Canadian high school diploma	0.0411*	(0.0022)	0.0411*	(0.0022)	0.0411*	(0.0020)
Canadian non-university certificate or diploma	0.0407*	(0.0022)	0.0406*	(0.0022)	0.0407*	(0.0020)
Canadian university bachelor's degree	0.1654*	(0.0036)	0.1656*	(0.0037)	0.1657*	(0.0033)
Canadian university graduate degree	0.0066	(0.0052)	0.0065	(0.0052)	0.0063	(0.0047)
Unemployment rate	-0.0164*	(0.0006)	-0.0165*	(0.0006)	-0.0163*	(0.0005)
Entry unemployment rate	-0.0027*	(0.0008)	-0.0027*	(0.0008)	-0.0027*	(0.0007)
Immigrant dummy variable	0.2036*	(0.0404)	0.3329*	(0.0497)	0.2314*	(0.0266)
1970-74 cohort*immigrant	0.0536*	(0.0250)	-0.0031	(0.0395)	0.0598*	(0.0174)
1975-79 cohort*immigrant	0.0656*	(0.0324)	0.0055	(0.0420)	0.0837*	(0.0204)
1980-84 cohort*immigrant	0.0333	(0.0487)	0.0231	(0.0480)	0.0993*	(0.0268)
1985-89 cohort*immigrant	0.0408	(0.0707)	0.0499	(0.0553)	0.1364*	(0.0325)
1990-94 cohort*immigrant	0.1515	(0.1041)	0.0010	(0.0645)	0.1398*	(0.0411)
1995-99 cohort*immigrant	-0.0357	(0.1826)	0.1469	(0.0869)	0.2310*	(0.0617)
Canadian experience*immigrant	0.0042	(0.0027)	0.0025	(0.0037)	0.0036*	(0.0018)
Canadian experience*1970-74 cohort*immigrant	-0.0038*	(0.0013)	-0.0027	(0.0019)	-0.0039*	(0.0009)
Canadian experience*1975-79 cohort*immigrant	-0.0046*	(0.0017)	-0.0045*	(0.0022)	-0.0054*	(0.0011)
Canadian experience*1980-84 cohort*immigrant	-0.0072*	(0.0025)	-0.0045	(0.0026)	-0.0067*	(0.0014)
Canadian experience*1985-89 cohort*immigrant	-0.0024	(0.0039)	-0.0079*	(0.0032)	-0.0079*	(0.0018)
Canadian experience*1990-94 cohort*immigrant	0.0082	(0.0065)	0.0030	(0.0043)	0.0008	(0.0027)
Canadian experience*1995-99 cohort*immigrant	0.0208	(0.0181)	0.0065	(0.0093)	0.0094	(0.0068)
(Canadian experience^2/100)*immigrant	-0.0004	(0.0070)	-0.0063	(0.0094)	-0.0025	(0.0048)

Table 8 - *(continued)*
OLS regression of earnings on entry unemployment rate and native cohort effects

	Western Regions		Eastern Regions		All Regions	
Foreign experience	0.0286*	(0.0028)	0.0147*	(0.0030)	0.0193*	(0.0016)
Foreign experience*1970-74 cohort	0.0012	(0.0014)	-0.0007	(0.0023)	-0.0001	(0.0010)
Foreign experience*1975-79 cohort	0.0033*	(0.0016)	-0.0015	(0.0023)	0.0002	(0.0011)
Foreign experience*1980-84 cohort	0.0016	(0.0020)	-0.0029	(0.0024)	-0.0022	(0.0012)
Foreign experience*1985-89 cohort	0.0028	(0.0024)	-0.0047	(0.0024)	-0.0039*	(0.0012)
Foreign experience*1990-94 cohort	-0.0023	(0.0027)	-0.0092*	(0.0025)	-0.0087*	(0.0013)
Foreign experience*1995-99 cohort	-0.0015	(0.0038)	-0.0127*	(0.0028)	-0.0121*	(0.0016)
Foreign experience^2/100	-0.0566*	(0.0069)	-0.0179*	(0.0055)	-0.0284*	(0.0035)
Canadian school years*immigrant	-0.0334*	(0.0020)	-0.0295*	(0.0022)	-0.0324*	(0.0013)
Foreign school years	0.0274*	(0.0019)	0.0292*	(0.0031)	0.0303*	(0.0013)
Foreign school years*1970-74 cohort	0.0015	(0.0022)	0.0024	(0.0035)	0.0012	(0.0015)
Foreign school years*1975-79 cohort	0.0033	(0.0027)	0.0034	(0.0036)	0.0022	(0.0017)
Foreign school years*1980-84 cohort	0.0096*	(0.0038)	-0.0019	(0.0038)	0.0007	(0.0021)
Foreign school years*1985-89 cohort	0.0055	(0.0053)	-0.0016	(0.0042)	-0.0015	(0.0024)
Foreign school years*1990-94 cohort	-0.0005	(0.0072)	-0.0002	(0.0045)	-0.0022	(0.0027)
Foreign school years*1995-99 cohort	0.0140	(0.0123)	-0.0055	(0.0058)	-0.0047	(0.0040)
Canadian high school diploma*immigrant	0.0037	(0.0127)	-0.0005	(0.0158)	0.0121	(0.0082)
Canadian non-university cert/dip*immigrant	0.0452*	(0.0118)	0.0196	(0.0143)	0.0355*	(0.0076)
Canadian university bach. degree*immigrant	0.1266*	(0.0161)	0.1650*	(0.0147)	0.1599*	(0.0094)
Canadian university graduate degree*immigrant	0.0174	(0.0215)	0.1598*	(0.0198)	0.0936*	(0.0129)
Foreign high school diploma	0.0418*	(0.0161)	0.0364	(0.0300)	0.0413*	(0.0120)
Foreign non-university certificate or diploma	0.0455*	(0.0149)	0.0195	(0.0261)	0.0374*	(0.0109)
Foreign university bachelor's degree	0.2882*	(0.0273)	0.2470*	(0.0338)	0.2688*	(0.0178)
Foreign university graduate degree	0.0702	(0.0397)	0.1003*	(0.0439)	0.0866*	(0.0252)
Canadian*foreign experience	-0.0010*	(0.0001)	-0.0007	(0.0001)	-0.0007*	(0.0001)
Unemployment rate*immigrant	-0.0009	(0.0016)	-0.0031	(0.0017)	-0.0030*	(0.0010)
Entry unemployment rate*immigrant	-0.0042	(0.0038)	-0.0017	(0.0027)	-0.0028	(0.0019)

Table 8 - *(continued)*

OLS regression of earnings on entry unemployment rate and native cohort effects

	Western Regions	Eastern Regions	All Regions
Other controls			
Marital status, Province, Toronto, Montreal, Vancouver, Rural status	YES	YES	YES
Mother tongue*knowledge of official languages	YES	YES	YES
Region of birth	YES	YES	YES
Foreign credentials*cohort*immigrant	YES	YES	YES
R^2	0.1851	0.1870	0.1871
Canadian-born sample	403,466	403,466	403,466
Immigrant sample	171,741	184,306	413,308

Note: Standard errors in parentheses.

Samples restricted to individuals aged 18 to 54 with positive earnings who reported working mostly full-time for 52 weeks in the income reference year. Immigrants who migrated before 1965 and natives who entered the Canadian labour market before 1965 are excluded from the sample. Institutional residents and those living in the territories are also excluded. Western regions include North America, and Northern, Western, and Southern Europe. The Eastern regions include Eastern Europe, Africa, and Asia. The language and region of birth means are shown in Table 5.

* indicates significance at the 5 percent level.

Figure 1: Predicted earnings profiles based on specification 1 of Table 1.

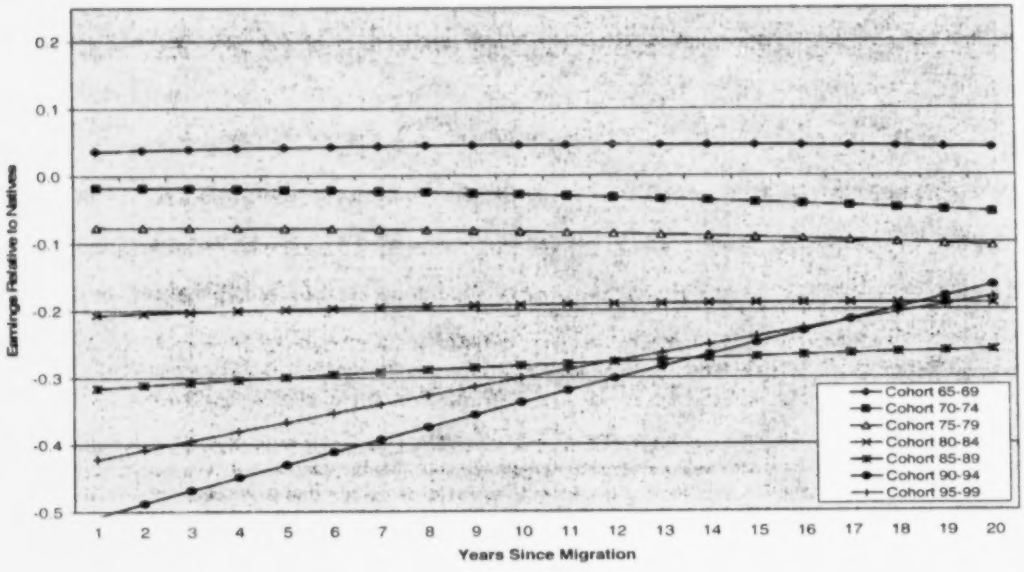
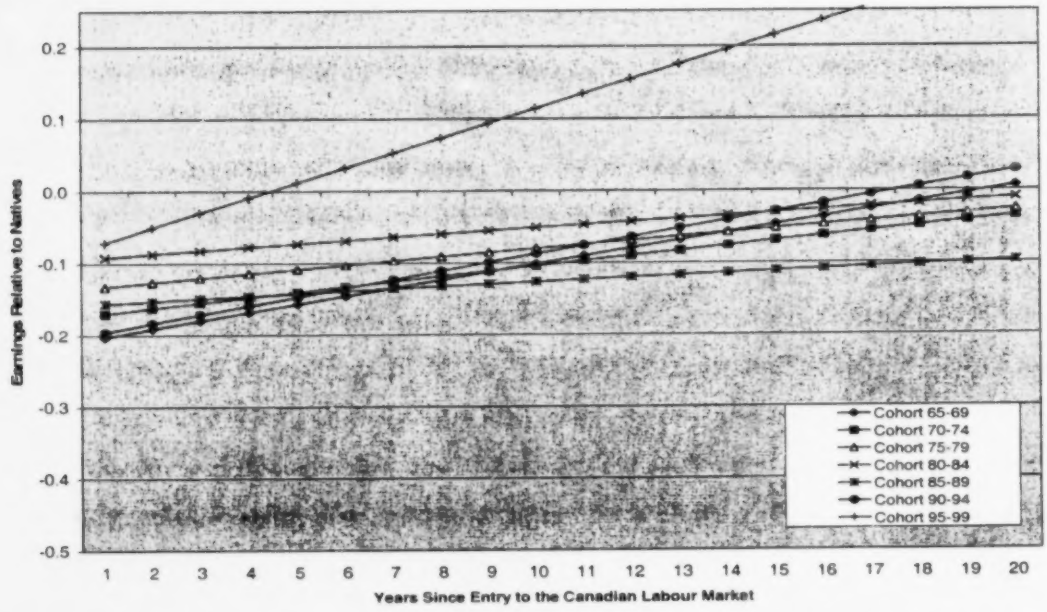


Figure 2: Predicted earnings profiles based on specification 3 of Table 8.



Note for Figures 1 and 2: All profiles represent the predicted earnings of an immigrant with a university degree who arrived with mean years of experience and schooling in the immigrant sample: 6.7 years of foreign experience and 14.3 years of foreign schooling. The comparison is with a Canadian-born with a university degree and the same years of experience and schooling.

We use the full set of estimated coefficients to predict the profiles in both figures.

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